



KNOX GRAMMAR SCHOOL

STUDENT & TEACHER EXCELLENCE

***“Never stop exploring, challenging, hypothesising, experimenting and learning. Remember: it is those people who are open-ended and curious who love and lead change best”
(2016, Richard Gerver).***

CASE FOR CHANGE

- By developing a collegial approach to professional learning that is focused on deepening pedagogical content knowledge informed by data, will there be measurable improvements in teacher performance, practice and self-efficacy?
- Will this approach lead to a measurable improvement in student learning outcomes, engagement and well-being?
- How might we empower our boys to realise their unique potential by developing grit, empathy, agility and agency?

CHALLENGES

- Using the data to track and know our students' stories
- Shifting the focus from covering content to uncovering the learning
- Developing our students' agility and agency.
- Enabling our teachers and students to collaborate, co-design and learn together
- Ensuring that our teachers are not overwhelmed and that we continue to listen to their voices

‘The greatest resource in Australian schools is our teachers’ (2010, Jenson)

‘Teacher quality is the single most important in-school factor influencing student achievement’ (2003, Hattie).

“The highest performing schools in the world...improve teaching and learning by focusing on enriching subject-specific pedagogy”
(OECD, 2014)

“A performance and development culture is characterised by a clear focus on improving teaching as a powerful means of improving student outcomes” (AITSL).

'... the evidence strongly suggests that the most capable students in Australian schools are being insufficiently challenged. It's an unfortunate phenomenon that's called 'coasting' and it's reflected in the flattening of the achievement profile of Australian students at the top end, as indicated in multiple international surveys from the OECD. We really do need to take action on that' (2015, Hattie).

“Students will increasingly need to know how to develop an agile mindset and flex their cognitive skills in areas such as empathy, social and emotional intelligence, and divergent thinking to work collaboratively, solve unstructured problems, and create new value for themselves and others” (The Harvard Innovation Lab).

LEARNING & RESEARCH TEAMS

- Successful professional learning programs immerse teachers in the content they teach and provide research-based knowledge about how students learn that content.
- Teams share knowledge, expertise and experience in order to deepen learning and to foster a mutual understanding of effective classroom practice.
- The teams are flexible. Teachers can change teams in semester 2 based on the data and teachers' needs.

LEARNING & RESEARCH TEAMS

- Subject-based teams sharing knowledge, expertise and experience in order to enrich pedagogical content knowledge and to foster a mutual understanding of effective classroom practice.
- Developing a shared understanding of the implications of internal and external student achievement data for teaching and learning.
- They engage directly with the subject matter they teach and how they teach it.
- Strategic, targeted and informed teaching and learning to foster continuous improvement and growth.

PEDAGOGICAL CONTENT KNOWLEDGE

- Pedagogical content knowledge is a special combination of content and the art of teaching that is uniquely constructed by teachers.
- It comprises integrated knowledge representing teachers' accumulated wisdom with respect to their teaching practice: pedagogy, students, subject matter, and the curriculum.
- It must be addressed within the context of a diverse pedagogy.
- The OECD research (2009, 2014) demonstrates that the highest performing schools in the world, such as Hong Kong, Korea, Singapore and Shanghai improve teaching and learning by focusing on enriching subject-specific pedagogy.

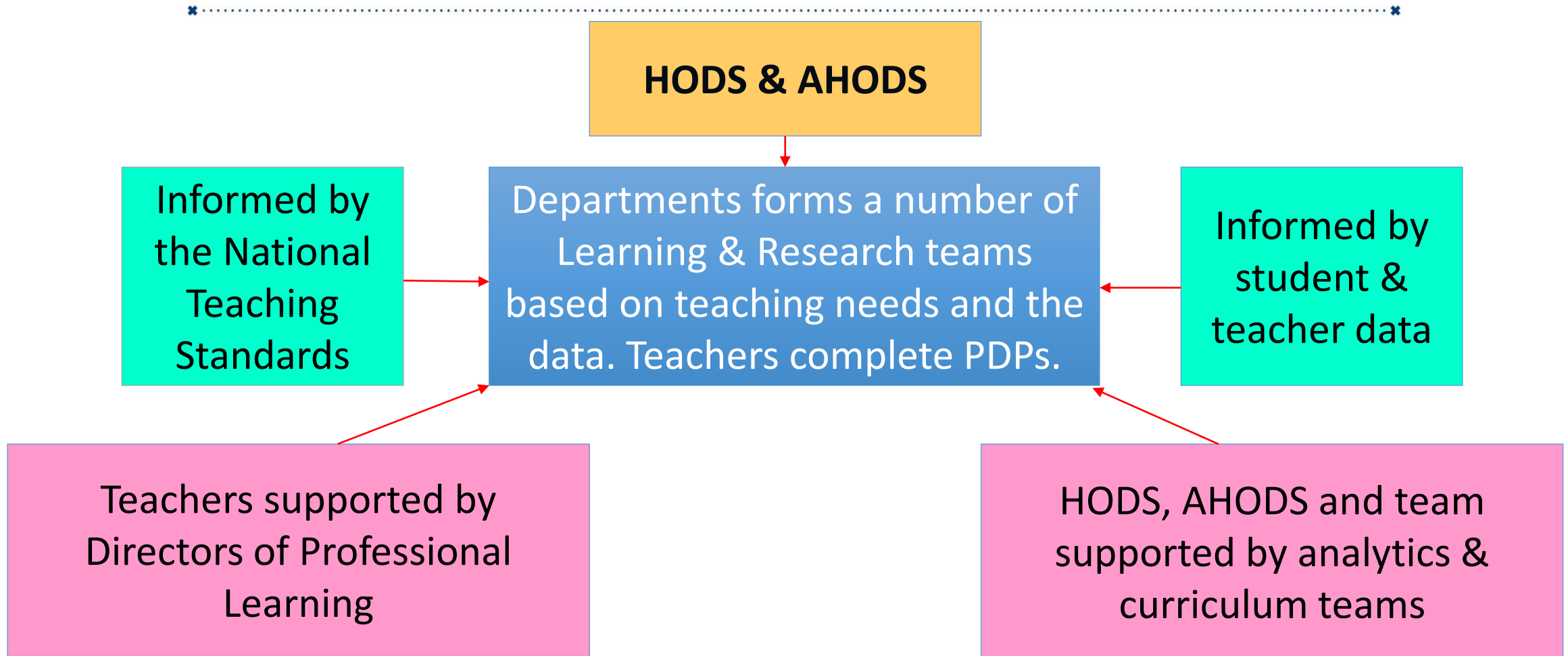
TEACHER SELF-EFFICACY

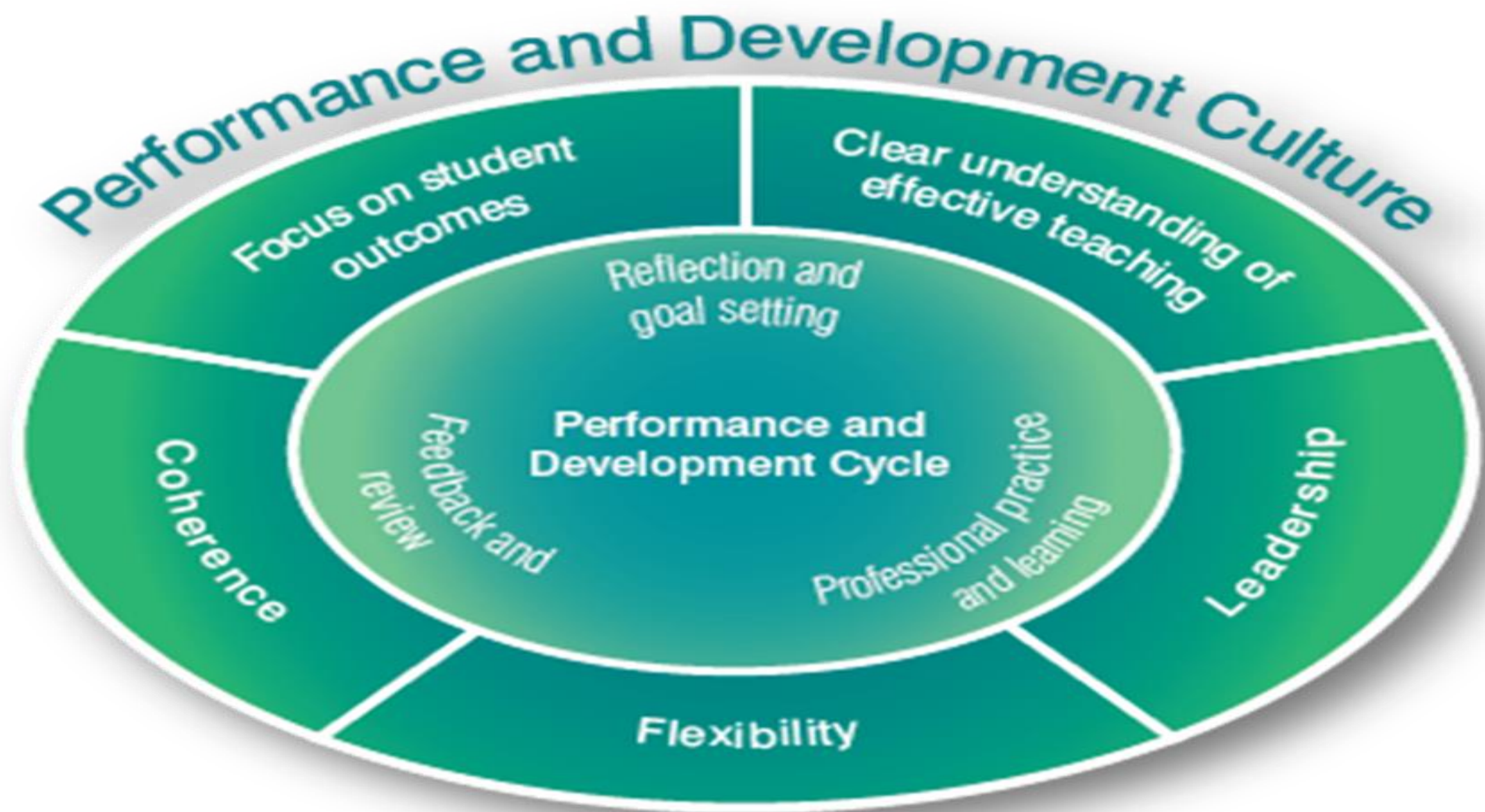


- Teachers are driven by wanting to make a difference in student learning (Hoy, 2000)
- The concept of self-efficacy is linked to the concept of agency, which is a fundamental human capacity to make a difference not only to our own lives but also to the world around us. Agency is a distinctively human characteristic which refers to our capacity to *‘pursue self-determined purposes and goals through self-conscious strategic action’* (Frost, 2006: 20).
- We are looking at enriching our collective efficacy.
- *“Success is liking yourself, liking what you do...”* Maya Angelou

“(Teacher) collaboration – the sharing of effort, knowledge and resources in the pursuit of shared goals – plays a central role in the achievement of student learning outcomes” (September 2015, Bentley and Cazaly).

2016: THE FIRST STEPS...





2016: THE FIRST STEPS...

- **Communities of practice:** Departments placed in HUBS (STEM, Humanities & Arts) supported by a Director of Professional Learning. Year 4 team in Prep using same approach.
- **Dedicated time to learn together:** Teams meet 4 times a term for one hour so they have the opportunity to learn, reflect, refine and re-apply their learnings.
- **Goal setting and reflection:** Professional Development Plans (PDPs): connected to student data and National Teaching Standards developed in Term 1, 2016 by teachers in consultation with HOD or AHOD. Reviewed mid-year and evaluated term 4.



2016: THE FIRST STEPS...

- **Data mining:** Student data is gathered by the analytics team from a plethora of sources such as: Allwell base-line testing, external tests such as NAPLAN and the HSC, internal assessment data, student perception and well-being surveys...
- **Targeted teaching:** Teams identify the target for improvement, such as a Stage 4 PDHPE team might target improving student writing in response to short answer questions.
- **Teaching excellence:** Identification of teaching excellence, filming of teaching moments and sharing of strategies and resources – [Click View](#)



LEARNING & RESEARCH TEAMS

- **Term 1:** Focus on all teachers becoming data literate.
- **Term 2:** Goal setting and targeted teaching/formative assessment
- **Term 3:** Forming Learning & Research teams with a mini-action research project focused on lifting an identified aspect of student performance.
- Resources and current research provided to all teachers.
Teachers as researchers!

“Research suggests that improved learning depends on teachers engaging learners: connecting with their interests and motivations; understanding where individuals are in their learning; identifying and addressing specific learning needs; diagnosing what learners know and can do, and what they still misunderstand; working with students to set clear personal goals for further learning; jointly monitoring learning progress; and recognising and celebrating the progress that individual learners make” (Masters, 2013).

TARGETED TEACHING



- *“Whatever a student brings to the table on the first day of school in Term 1, he or she should make at least a year’s worth of progress by the end of Term 4. Any less and our students will fail to reach their full potential”* (Grattan Institute, 2015).
- Targeted teaching means taking responsibility for lifting the performance of students and also finding ways to challenge students who are already well ahead of year level expectations.
- Great teaching means extending the skills and knowledge of every student in every class, regardless of their starting point.

TARGETED TEACHING



- We seek and value frequent feedback from students on the effectiveness of teaching.
- We ask questions, review work and conduct other types of formative assessment in order to refine their teaching as they go.
- We track students' progress over time against both learning goals and grade-level expectations.
- Finally, the evidence of learning collected at each stage is used to enable us to evaluate and adapt our practices.

DATA MINING

- Systematic identification and collection of data from a plethora of sources
- Easily accessible for all teachers
- Purposeful and collaborative analysis and interpretation of qualitative and quantitative data
- Used to strategically inform teaching and learning
- Term 4 2016 Student perception surveys and Teacher self-efficacy surveys

THE BIG MESSAGES – RIGHT FROM THE START

- Every piece of data has the potential to generate:

Questions, Discussions, and Opportunities.

- Data can support our assumptions and guide our thinking, but the conversations we have with students and their parents are where we bring about change.

- Encourage reflective practice amongst your staff, and use the data in a productive rather than punitive manner to improve staff performance.
- **Note:** This requires time and effort to build a “culture” within the school, but is clearly worthwhile.

HOW DO WE KEEP TRACK OF STUDENT PROGRESS?



1. Mark books

At Knox we use MS Excel to handle all mark book data. This data is then uploaded into our TASS database management system for reporting.



Year 12										Rank Task 1	Task 2 Exam 16/2/16	Rank Task 2	Cmty Mark	Cmty Rank	SM 1 Report 23/3/16	Task 3 Ind Project	Rank Task 3	Cmty Mark	Cmty Rank	Trial HSC Exam	Rank Task 4 Trial	Dux of the Year	BOS & Final Combined Mark for the Year 100%	BOS & Final Rank for the Year	Band Estimation (Hod Only)
Subject Code	Stud Code	Surname	Given Names	Year	Term	Class	Weighting	Teacher Name	BOS	20%	40%	40%	30%	70%	30%										
1										38	100	100	100	55	9	100	100	100	100						
2										8	33	10	90	10	90	51	9	91	8	76	10				
3										11	34	6	91	9	91	47	14	88	10	61	13				
4										1	35	3	96	2	96	55	1	98	2	94	2				
5										26	20	25	62	27	62	22	27	53	28	28	27				
6										15	36	2	92	7	92	55	1	96	6	80	8				
7										8	34	6	92	8	92	50	10	91	9	80	8				
8										18	26	16	78	20	78	53	7	86	11	54	17				
9										1	35	3	96	2	96	48	13	92	7	83	6				
10										21	23	24	71	22	71	47	14	77	21	50	19				
11										15	26	16	79	17	79	50	10	84	13	81	7				
12										15	26	16	79	16	79	39	24	76	23	44	20				
13										3	34	6	94	6	94	54	6	96	5	91	3				
14										18	29	12	82	15	82	49	12	85	12	62	12				
15										11	25	19	79	18	79	46	16	81	18	53	18				
16										11	29	12	84	13	84	39	24	78	20	36	26				
17										25	18	27	60	28	60	40	23	66	26	43	22				
18										3	30	11	88	11	88	43	20	84	14	42	23				
19										7	35	3	94	4	94	55	1	97	3	89	5				
20										8	29	12	85	12	85	45	19	84	15	59	14				
21										24	25	19	70	25	70	33	26	66	27	40	25				
22										3	38	1	99	1	99	55	1	99	1	99	1				
23										23	24	22	70	24	71	43	20	74	24	56	15				
24										3	34	6	94	5	94	55	1	96	4	91	3				
25										21	24	22	72	21	73	52	8	82	17	44	20				
26										20	20	25	69	26	69	42	22	72	25	42	23				
27										11	25	19	79	18	79	46	16	81	18	56	15				
28										27	27	15	71	23	71	46	16	76	22	64	11				
Average										26.7			82.2		82.2	46.7		83.3		62.9		77			
Stan Dev										5.5			11.1		11.1	7.7		11.3		20.5		13.6			

A series of tabs is used in the “markbook file” for each reporting period, and for CSV file generation for upload into the database.

A	B	C	D	E	F	G	I	J	K	L	M	N	O
Year Half – Yearly							Half Yearly Honours	Half Yearly SOA	Assess Rank	No in Course		Sem 1 Non-Exam Ass	Half Yearly Comb Ass
Stud Code	Surname	Given Names	Year	Class	Teacher Name			New Mean	Number			40%	40%
								New S.D.	27			100	100

Macro scripts are used to update student lists in markbooks through the use of queries of the TASS database.

Each task has an accompanying rank and in ALL senior markbooks a “progressive rank” after each task, so that teaching staff can quickly see any changes in rank compared to previous tasks.

We also provide a “snapshot screen” in many markbooks, which displays last years raw data, sorted on this years teacher’s name so that staff can compare performance on like tasks.

Over time these markbook files have become more specific.

Isolation of individual outcomes within a task – to allow progressive comparison of individual students and whole cohorts. This allows us to keep track of when students meet a specific outcome, and provides us with a means to look at patterns between year groups.

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
I	Task 1 Qtn1	Task 1 Qtn2	Task 1 Qtn3	Task 1 Qtn4	Task 1 Total	Rank on Task 1	Task 2 Qtn 1 T2Wk4 16/5	Task 2 Qtn2	Task 2 Qtn3	Task 2 Qtn4	Task 2 Total	Rank on Task 2	SM 1 Assess Total 21/5
t					20.0%						25.0%		45%
	10	10	10	10	40		15	15	8	8	46		100
	8	9	9	9	35	6	12	11	8	5	36	28	82

A “master” spreadsheet is used to connect to all mark books to run “file-checks” that update the data as the school database changes.

Subject Data - Excel									
File Home Insert Page Layout Formulas Data Review Developer View Dave's Tell me what you want to do...									
E45									
A	B	C	D					E	
Run File Check Put Y in col E Then run.	Create CSV File upload to TASS	Unlock markbooks after reports are finalised. Put Y in column E then click here	Unshare file and unprotect all sheets Select file and click here	Sort Normal	Open Markbook Select file	Sort by BOS Number Select File	Markbook Rollover col F = newfilename	File Check 02-09	
1 Faculty	Year	Files							
32 Drama	10	\\kgs\staff\drama\Markbooks\Markbooks 2016\Y 10 Drama 2016.xlsx						2/09/2016	
33 English	10	\\kgs\staff\english\Markbooks\Markbooks 2016\Stage 4-5\Y 10 English 2016.xlsx						2/09/2016	
34 ESE	10	\\kgs\staff\hsie\Markbooks\Markbooks 2016\Commerce\Y 10 Commerce 2016b.xlsx						2/09/2016	
35 Geography	10	\\kgs\staff\hsie\Markbooks\Markbooks 2016\Geography\Stage 4-5\Y 10 Geography 2016.xlsx						2/09/2016	
36 Geography	10	\\kgs\staff\hsie\Markbooks\Markbooks 2016\Geography\Stage 4-5\Y 10 Geography Elective 2016.xlsx						2/09/2016	
37 History	10	\\kgs\staff\hsie\Markbooks\Markbooks 2016\History\Stage 4-5\Y 10 History Elective 2016.xlsx						2/09/2016	
38 History	10	\\kgs\staff\hsie\Markbooks\Markbooks 2016\History\Stage 4-5\Y 10 History Core & da Vinci 2016.xlsx						2/09/2016	
39 Languages	10	\\kgs\staff\modern\Markbooks\Markbooks 2016\Stage 4-5\Y 10 French 2016.xlsx						2/09/2016	
40 Languages	10	\\kgs\staff\modern\Markbooks\Markbooks 2016\Stage 4-5\Y 10 German 2016.xlsx						2/09/2016	
41 Languages	10	\\kgs\staff\modern\Markbooks\Markbooks 2016\Stage 4-5\Y 10 Japanese 2016.xlsx						2/09/2016	

HOW DO WE KEEP TRACK OF STUDENT PROGRESS?



2. Tracking individual student progress such as NAPLAN data Using MS Power BI.

The Power BI is a recent addition to our analysis capability, allowing us to bring data from multiple worksheets into one platform and provide a ready-reference of historical performance.



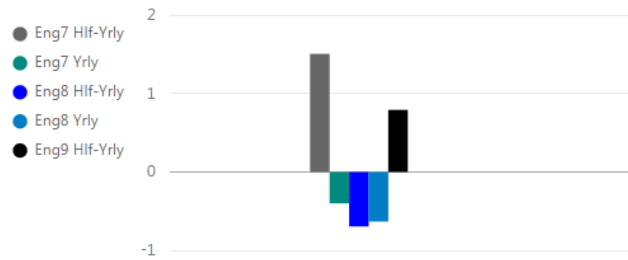
We also carry out progressive analysis of student performance using Z Score data for key subject areas...



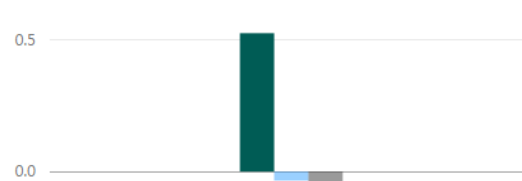
Year 9 Analysis
Seme
2016

Student Name
in Diamond

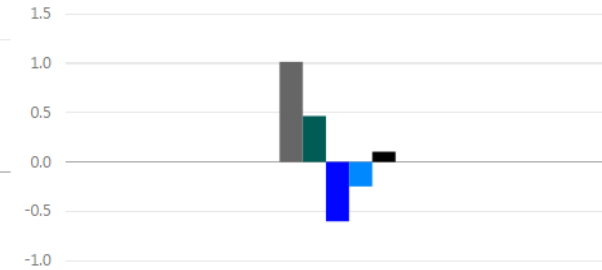
English Z-Score Data 2014-2016



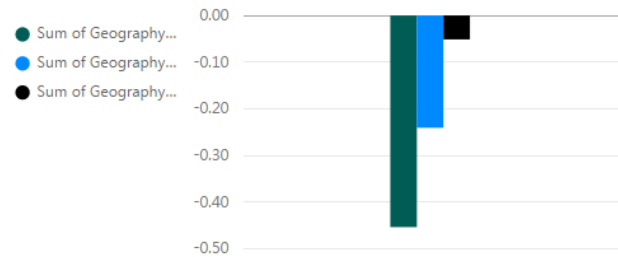
History Z-Score Data 2014-2016



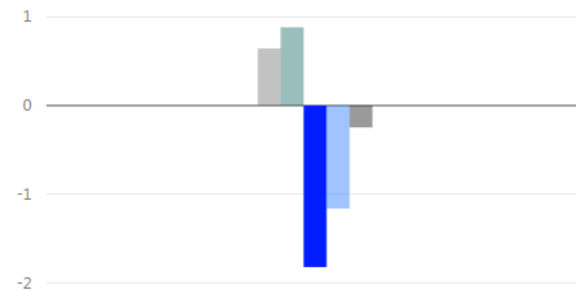
Science Z-Score Data 2014-2016



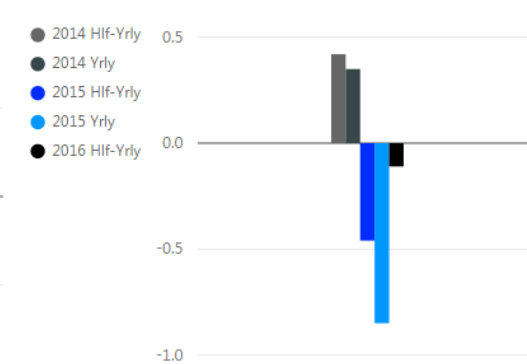
Geography Z-Score Data 2014-2016



PDHPE Z-Score Data 2014-2016



APA Z-Test Data 2014-2016



Individual Student

Mentor ZTest

AllWell-Naplan

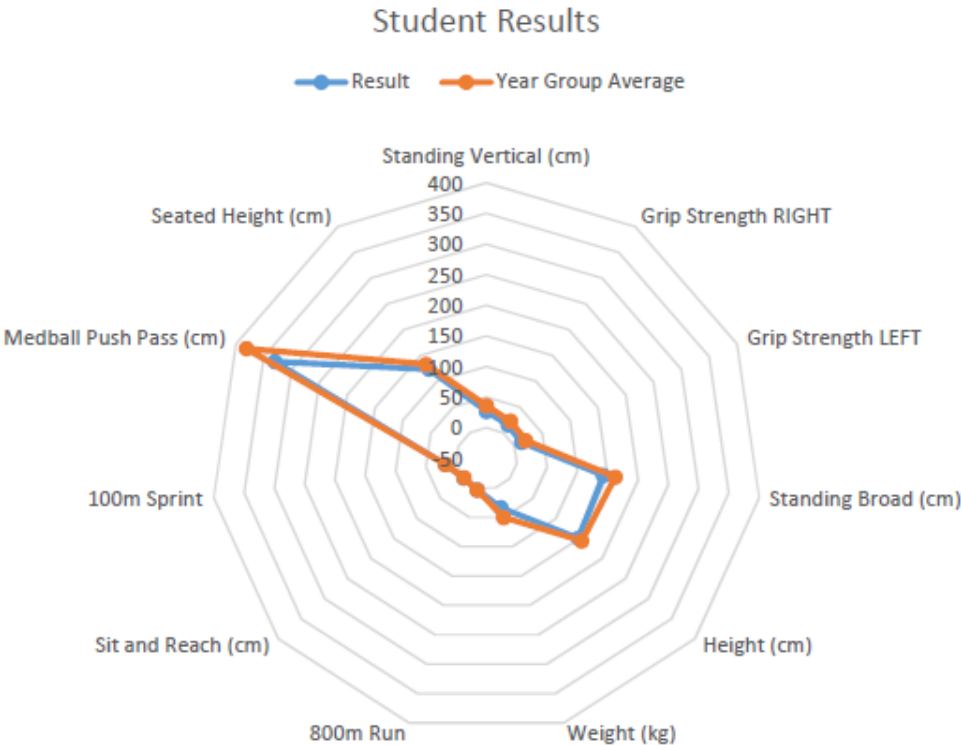


HOW DO WE KEEP TRACK OF STUDENT PROGRESS?

3. Within individual faculties

- Faculties often ask us to complete individual analysis of data (In this case we are looking at results for physical performance on a series of standard tests).
- This can be compared each year as a students individual development continues.

	Result	Year Group Average
Standing Vertical (cm)	27	36.43
Grip Strength RIGHT	15	22.32
Grip Strength LEFT	13	20.40
Standing Broad (cm)	143	162.38
Height (cm)	149	155.75
Weight (kg)	33.7	50.50
800m Run	3.49	3.69
Sit and Reach (cm)	-1	-1.60
100m Sprint	17.83	17.79
Medball Push Pass (cm)	330	381.43
Seated Height (cm)	123	132.81



Analysis of topic test data, with individual reports for each student.

This allows students to immediately see the areas they need to work on, with specific text references.

These can be emailed as PDF documents direct to both parents and students.

SDDPrelim - Topic Test Analysis 8.1.2 Hardware and Software					
Student Name:					
		Answer Provided	Correct Answer	Specific Areas to work on	
Multiple Choice Section					
1	Hardware Storage	B	B	The section storage starts on p80	
2	CPU Definition of Buses	B	D	See the section on processing and control strating on p94	
3	Fetch Execute Cycle	D	D	See the section on processing and control strating on p94	
4	Hardware Storage	D	D	The section on storage starts on p80	
5	Operating systems	D	D	Please look over the area of the text starting on p 94-104	
6	Operating systems	A	A	Please look over the area of the text starting on p 94-104	
7	Languages Source Code	A	C	See p108-116 for this section of the course	
8	Languages Object Code	D	D	See p108-116 for this section of the course	
9	Languages Assembly Language	C	C	See p108-116 for this section of the course	
10	Hardware Storage	C	A	The section on storage starts on p80	

USE OF GRADE CAM SOFTWARE

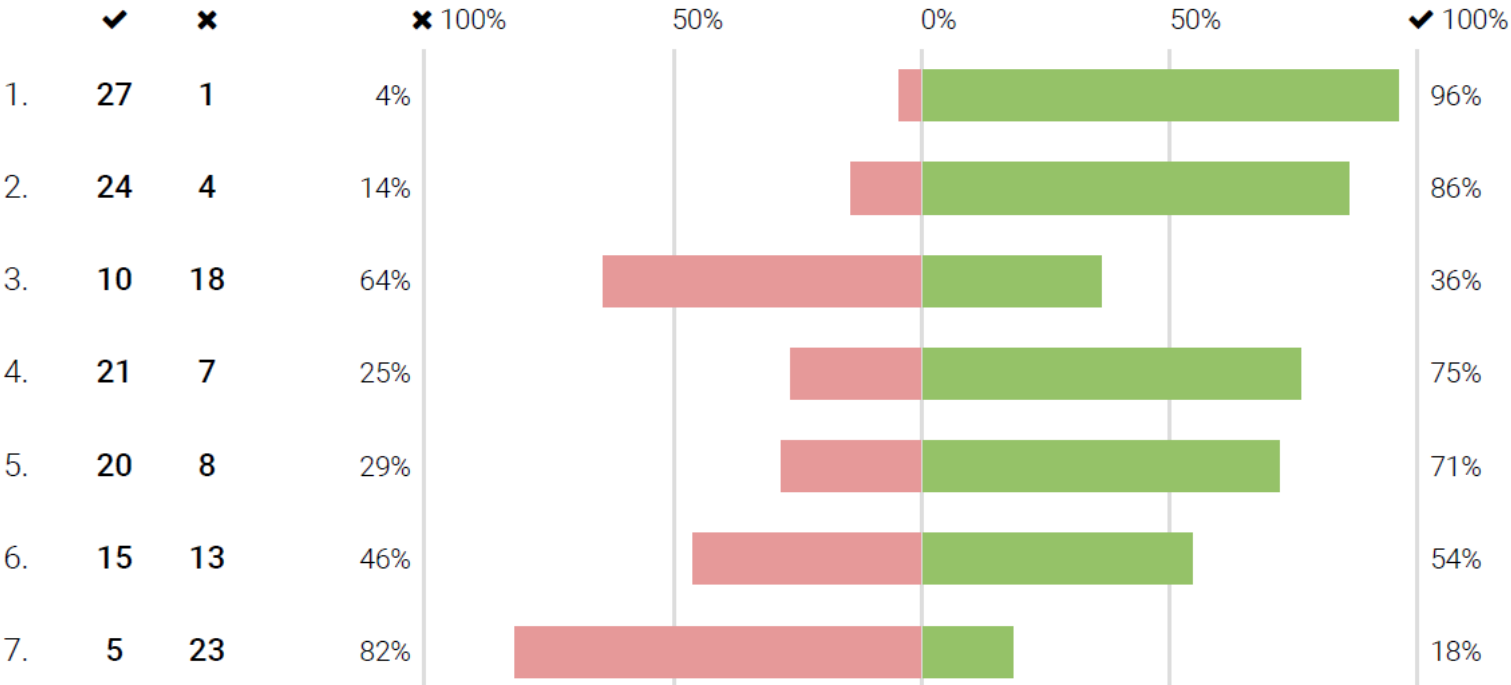
This allows us to look at performance on individual Multiple Choice items that have been mapped to specific curriculum outcomes.

Intervention strategies can then be implemented to try to bring about improvement in student performance in known areas of weakness.

Yr 11 Yearly Exam Software Design and Development 2016 (20 pts)

☆ Item Summary

Yr 11 Yearly Exam Software Design and Development 2016





The intervention can consist of a variety of strategies, including tailored review workbooks that focus on specific areas of course content identified from the data.

Further analysis of data collected after the intervention can then be used as a tool to discuss overall performance with parents/caregivers.

Finally, the use of peer and self-evaluation as a reflective tool for students.







This is aimed at getting students involved in their own learning....







Date Completed: ____ / ____ / ____

Self-Evaluation

How did you go?

This page is a self-evaluation of your work. Answer the questions below with honesty, and be prepared to discuss this with your peers, parents and teacher(s).

Completion of Booklet	Self-evaluation			Peer evaluation		
Has completed this work booklet to a high standard (CIRCLE)						
Your comments:				Peer Comments:		
Date Completed:						

Topic Test Result	Self-evaluation			Peer evaluation		
How do you think you went in the topic test? (CIRCLE)						
Your comments:				Peer Comments:		
Date Completed:						

Moving Forward – What areas do you need to review?